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MONTANA energy notes

FALL 1986

NEW LOOK

ENERGY NOTES now has a "new look", a new name, and a new masthead. MONTANA ENERGY NOTES is an occasional insert in the newsletters of the Montana Association of Counties and the Montana League of City & Towns. The support of these organizations makes MONTANA ENERGY NOTES available to you.

WINDOW GLAZING NEWS

Montana window glazings have two primary purposes: 1) to let in the right amount of sunlight, and 2) to minimize heat loss. But glazings are no longer just a matter of a pane of glass or two.

Glazings have been developed that maximize the solar transmittance (low iron glass), reflect unwanted sunlight (reflective films), and that minimize heat loss (low emissivity films and coatings).

Regardless of the need to increase or decrease solar transmittance, building designers want to maximize the insulating value of the glazings, since an average large building loses about 25 percent of it's heat through its windows. In the past, designers have tightened around windows and added window panes to reduce heat loss. Today, new low emissivity (low-E) coatings reduce heat loss by reflecting infrared radiation, holding the buildings warmth inside. When used in double glazed windows, these low-E glazings increase the radiant temperature of the inner pane, improve room comfort and reduce window condensation. Since low-E coatings do not reflect visible light, they are clear and colorless.

Low-E treatments are available as a "soft coat," (vacuum-deposited films applied on clear polyester sheets suspended between the panes of glass, or directly onto the glass) and as a "hard coat" which is pyrolyticly fused to the glass.

Low-E coatings, when used in multiple glazings, produce R values of 2.5 to 5 (see following table). This is a significant improvement over simple double-paned windows which have an R value of 1.8, but is still less than the R-19 of well insulated walls. In many cases the energy savings provided by these new windows pays back their increased initial cost in less than three years, and the building is much more comfortable as well.

Table 1
Glazing System Characteristics[1]

Glazing Type	Solar Transmittance (% of sunlight)	R-Value Approximate[2] Winter Time (hr-F°Btu)(%chge)		Cost Glass and Frame[3] ($/sq.ft.)(%change)
1 pane low iron glass	91%	.9	---	[4]
1 pane glass	85%	.9	(-50%)	$14.20 (-8%)
2 panes glass	75%	1.8	(Base)	$15.45 (Base)
2 panes w/low-E "hard coat"	61%	2.5	(38%)	$17.48 (13%)
3 panes glass	61%	2.6	(41%)	$17.08 (11%)
2 panes w/low-E "soft coat" film	57%	3.1	(73%)	[4]
2 panes with suspended low-E film between panes	58%	4.1	(127%)	$25.03 (62%)
3 panes w/low-E "hard coat"	48%	4.3	(137%)	$19.46 (26%)
2 panes w/silver coat argon filled	62%	5.0	(178%)	$22.50 (46%)

Footnotes -

1/ From Department of the Navy, Information Bulletin, Naval Energy and Environmental Support Activity, Port Hueneme, CA and other sources.

2/ R-values are approximate and specific units will vary up to 30 percent from these values.

3/ Approximate Montana Commercial Costs-Spring, 1986, based on a 2 Ft. by 3 Ft. primed wood casement window.

4/ Unit is a custom order item.

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INNOVATIVE FINANCING for ENERGY INVESTMENTS

"Achieve energy savings with no capital outlay!" It sounds impossible, but innovative financing for energy conservation and cogeneration have made it possible throughout the world. This business development has received support from energy businesses, state and local governments and public institutions.

How do these techniques make businesses, utilities, institutions, and governments better off? An energy service company provides financing for energy conservation measures to customers who are unable to make the initial, often substantial, capital investments in energy conservation. The energy service company then is repaid out of the energy savings generated by the energy conservation measures.

The energy service company first examines the facilities' energy system, then purchases and installs the energy conservation measures, and may even operate and maintain the energy equipment. The company guarantees a percentage or a specific dollar reduction in the buildings' energy costs, and will keep a portion of the energy savings for three to ten years to pay for energy investments they supply. In return, the building owner receives guaranteed energy savings and often has the option of acquiring the equipment at the completion of the energy service contract.

The prime beneficiaries are local governments, schools, hospitals, industry, and commercial businesses--energy consumers who traditionally have many competing demands for their available money. Innovative financing arrangements range from lease or lease/purchase agreements to shared savings and service contracts. All of these arrangements generally provide:

1) The equipment is supplied and installed at no up-front cost to the building owner;
2) The fees to the energy company are paid out of the energy savings over the contract period; and
3) The energy service company provides a one-stop energy management service to the builder owner supplying a full package of energy engineering and financing services. Many energy service companies offer a comprehensive set of energy savings measures, rather than just providing goods and services from only one manufacturer.

The Energy Division of the Department of Natural Resources and Conservation, has compiled a list of firms willing to provide innovative financing in Montana. It is also sponsoring an Energy Financing Assistance Demonstration Project to help local governments secure innovative financing for energy retrofit projects. This project will help selected local governments solicit financing and installation of measures by energy service companies. For more information contact Cory Plantenberg at DNRC (444-6697).

ENERGY EFFICIENT BUILDING CODE ASSISTANCE

The International Conference of Building Officials (ICBO) is providing assistance to local building code officials and building energy specialists in Montana working with highly energy efficient codes, such as the Model Conservation Standards (MCS). This Bonneville Power Administration (BPA) funded program provides several types of assistance to building officials. The first is interpretations of building code language amendments to the 1983 Model Energy Code. These interpretations are written supplements to the MCS Manual of Accepted Practice, providing more detailed discussions of workable construction techniques. The second is an evaluation service listing products that are accepted for use in MCS houses as well for the Montana Building Codes. ICBO also provides a listing of publications and/or video presentations on advanced building techniques. Finally ICBO provides same day telephone answers to building inspector certification and design questions. Any building code official in Montana with questions about MCS or Super GOOD CENTS buildings can call the Northwest Regional Office of the Inter- national Conference of Building Officials toll free at 1-800-231-4776.

Montana currently uses the 1983 ICBO code as the approved state code to specify minimum levels of house energy efficiency. More energy efficient codes, such as MCS would require commercial buildings lighting systems to be twice as efficient as present and would require houses to use less than half the existing average amount of energy.

Route To:
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